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Care of the Wounded in Vietnam

Arthur M. Smith

Robert M. Hardaway

cases to support his explanation as a process of perceptual and organizational dysfunction.

One could say that there is nothing new here. After all, certain aspects of managerial psychology, such as groupthink and persistence of hypotheses, are well-known to anyone who has taken a short course in the subject or who has had to deal with people. But this book combines the material in a fashion that produces new insights. In one particularly telling section, "Group Risk Taking," Kam discusses why it is actually easier for a team of analysts to accept the risk of attack rather than risk being wrong. The author presents a credible argument that, far from being an aberrational system failure, vulnerability to surprise attack is actually encouraged by bureaucratic systems.

As the world enters a new state of flux in the post-Warsaw-Pact era, contributions like *Surprise Attack* are relevant. As Kam argues, "Since views are not likely to change easily, people tend to fit incoming information into preexisting images and to perceive what they expect to see." The future that the United States faces is likely to be unforgiving of such perceptual blind spots. *Surprise Attack* is a "must-read" for military planners and, indeed, for anyone for whom survival and success depend on anticipating what the other side may do, or who the other side is!

PATRICK G. SULLIVAN, JR.
Herndon, Virginia

Hardaway, Robert M. *Care of the Wounded in Vietnam.* Manhatten, Kansas: Sunflower Univ. Press, 1988. 244pp. $15

At least up till the time of Desert Storm, the medical care given to U.S. combat casualties in Vietnam was unquestionably the finest in the history of military medicine. How did this occur? Because the tactical environment in the Vietnam war was unique; the medical support system that evolved in support of combat operations bore similar distinctive characteristics. General Hardaway's book provides some clues toward understanding, within this setting, the basis for what some have described as military medicine's "finest hour."

With only occasional exceptions, such as military actions at Khe San, and at Hue during the Tet offensive, there were few prolonged battles in the Vietnam conflict. The volume of casualties, low compared to most other wars, was generated in relatively brief "fire fights." Following resumption of control over combat areas, evacuation helicopters were called in, and the casualties were flown to hospitals in a fashion similar to that provided by urban emergency services in peacetime.

A static support base existed in Vietnam, characterized by logistics largesse, with adequate numbers of replacements, sufficient time, an abundance of medical units, and a continuing and ample supply of whole blood. Virtually immediate (often within one hour) evacuation of the combat casualty was common-

place, a feat never before accomplished on the battlefield. This was due to the ubiquitous presence and routine use of the helicopter, in addition to overwhelming U.S. local fire superiority, uninterrupted radio communications, total air superiority, the absence of enemy troops equipped with "Stinger" type handheld surface to air missiles, and an abundance of helicopters and crews.

During the Vietnam conflict, semipermanent hospitals, as well as hospital ships, with equipment and medical staff comparable to civilian trauma centers, were located close to the battle areas. Modern and sophisticated medical treatment and research equipment were located close to the battlefield. Since medical facilities enjoyed almost stateside security conditions due to the virtual absence of enemy air and artillery attack, there was little need to protect essential equipment and patient holding areas from attack. It was in this setting that General (then Colonel) Hardaway, and his associates from the Walter Reed Army Institute of Research and the Army Surgical Research Team, as well as some Navy units, carried out their investigative efforts on the human response to battle injury, which is the principal focus of this book.

Historically, dating back to the Civil War, human and laboratory investigations into the effects of wounding, and casualty responses to varied forms of surgical and medical treatment, have been an integral part and function of U.S. military medical services in combat theatres. A former military consultant in the World War II Mediterranean Theatre of Operations once stated, "It was vital that wound surgery be carried out within a framework of inquiry, for this theatre was the proving ground for the greater task that was to come." During the Korean conflict, research groups concentrated on evaluating treatment of kidney failure after injury, repair of injured blood vessels, management of wound infections, and the general effects of wounding and shock.

Similarly in Vietnam, the study of shock was considered to be of paramount importance, since shock was what killed patients after they reached the hospitals. A new type of patient appeared in Vietnam, one who was of great importance to both surgical research and shock treatment investigation: the critically wounded patient, suffering rapid blood loss from blood vessel or organ injury. In any other war a person in such condition would have died shortly after injury. He was now delivered to a hospital within a few minutes after injury. For example, the authors note that ten percent of all wounded in Vietnam required blood transfusion, the average amount being seven units per patient. About twelve percent of those receiving blood received 11 or more units, and up to 90 units. This milieu allowed relatively unencumbered research opportunities in studying the human response to massive blood loss, shock, and major tissue injury. This

also marked the first time that such sophisticated studies had been conducted under such conditions of war, primitive surroundings, high humidity, mud, dust, and at the end of a supply line stretching halfway around the world.

Many interesting findings ensued from these studies. For example, soldiers wounded in Vietnam were found to be dehydrated when studied immediately after an injury. This was particularly noticeable if they were wearing heavy body armor. Research showed that their tissue fluids were decreased, as compared to other soldiers not in combat and doing routine duties. This partial dehydration was found to increase their susceptibility to shock if they should be wounded.

This is primarily a technical text written for physicians, but nevertheless historically significant. Unfortunately, continuity of thought throughout the text is lacking, and it is more a compilation of essays by various authors who were involved in the Vietnam medical research theatre. Included are on-site observations by Dr. Hardaway, of the actual delivery of health care at various Army and Navy installations, and a vast array of research findings accumulated by him and his associates. An excellent chapter on anesthesia for combat casualties is contained within the text, a subject that is probably unknown to physicians currently practicing within the military.

Practicing medicine in the military today is vastly different from what is classicly known as "military medicine." The latter consists of a distinct body of knowledge specific to combat military practice. The spectrum of diseases in the combat theatre is different, and the spectrum of injuries is vastly different in terms of multiplicity of wounds and magnitude of injury, from those normally encountered. In addition, the conditions under which care may be rendered are significantly different. Despite its anecdotal style and editorial structural limitations, General Hardaway's book should be required reading for most physicians in the armed forces today who are attempting to practice civilian level medicine in the military hospital setting, and have no exposure to the brutal lessons of past military medical practices.

Though once again in Desert Storm we were granted the luxury of transposing sophisticated medical care and research facilities onto the combat field, we should not count on such fortune twice in a row. Nevertheless, if we do not heed the lessons of history, many of which were unearthed by the work of Dr. Hardaway and his fellow essayists, we are bound to make the same errors again, and will be forced to relearn the same lessons at the expense of our wounded comrades.

ARTHUR M. SMITH
Captain, Medical Corps, U.S. Navy Reserve
Augusta, Georgia